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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/463,565	04/21/2001	Tatsuya Hashimoto	MAT-7886US	6486

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EXAMINER

WINTER, GENTLE E

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 01/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/463,565

Applicant(s)

HASHIMOTO ET AL.

Examiner

Gentle E. Winter

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9, 10 and 13 is/are pending in the application.
- 4a) Of the above claim(s) 6 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 9, 10, and 13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant argued:

Carlson does not explicitly state on which side of the cathode the layer was coated. However, for the layer to function as a separator, its intended purpose (column 3, lines 34-40), it must be coated onto the layer of cathode material, not onto aluminum surface of the opposite side of the aluminum foil substrate. Thus, "cathode coating layer" refers to the layer of cathode active material on the aluminum substrate. This conclusion is further supported by claim 62 in which the substrate and the cathode coating layer are separate elements of the claim. The boehmite sol is coated onto the cathode coating layer, not onto the substrate. See also, Carlson, column 9, lines 31-32 ("the separator is coated directly onto the cathode layer").

Applicants' claims recite a layer on a surface on the electrode plate having thereon an oxide layer formed by boehmite treatment. In Carlson, the boehmite layer is on the cathode active material, not onto the aluminum substrate (electrode plate). Thus, this limitation of applicants' claims is not met. For this reason, the rejection of claim 1 as anticipated by Carlson should be withdrawn.

It is noted that claim 1 is directed to an apparatus. Structural limitations are where patentability resides in apparatus claims. That a particular substrate is to be used as a cathode, or which side of the cathode is coated is relevant only to the extent that the same imparts structure. Applicant has provided a definition of "electrode active material" but has not placed the definition in the claim. What is the "chemically reactive material in either of the electrodes that participates in the charge and discharge reactions."? Or would Applicant prefer "An energy-storing material, such as lead oxide, used in plates of a storage battery."? Why is Applicants' definition of "electrode active layer" superior to the definition provided by the Office, and taken from the Nikaido patent?

In support of this rejection, the Office also asserts, without support, that "aluminum inherently forms an oxide layer." Paper 13, page 4, lines 1-2. While the surface of aluminum metal may form a thin film of aluminum oxide under ambient conditions, Applicants' claim 1 does not recite an oxide layer. Applicants' claim 1 recites an "oxide layer being formed by applying a boehmite treatment to the electrode plate surface," i.e., a layer of boehmite (hydrated aluminum oxide),

The Office has neither asserted nor provided any evidence that a layer of hydrated aluminum oxide forms on an aluminum surface under ambient conditions. Further, claims 3 and 4 each recite a thickness range for the boehmite layer. The Office has neither asserted nor provided any evidence that the thickness any layer of aluminum oxide that may form on an aluminum surface under ambient conditions falls within the thickness range recited by these claims. The Office is respectfully requested to provide such evidence or it will be concluded that none exists.

Notwithstanding the above arguments, hydrated aluminum oxide is not what is claimed. Rather "oxide" is what is claimed. Applicants' arguments are drawn to limitations not in the claims.

With respect to statements to the effect of "[T]he Office is respectfully requested to provide such evidence or it will be concluded that none exists." Applicants' are always free to draw conclusions. Facts are not diminished or enhanced by drawing conclusions. This Examiner relies on the prosecution history and the facts which are therein. It is noted that Applicants' have not taken the position that oxide does not form on aluminum when the same is exposed to air. More specifically, as to claim 3, disclosing that the oxide layer has a thickness of 0.5 microns-5 microns. The boehmite layer is disclosed to have a range of 1-25 and 5-15 microns, thus covering most of the claimed range. See e.g. column 4, lines 3-9. The foregoing and balance of the arguments could have been advanced while prosecution was open or are fully addressed in the prior Official actions.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 is rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent No. 4,759,805 to Saruwatari et al. discloses a electrode (aluminum conductor) having formed thereon an oxide layer (boehmite film), the oxide layer being formed by applying a boehmite treatment to the electrode plate surface and a layer of an electrode active material is on the oxide layer (wetting agent), wherein the oxide layer is non-porous (non-porous boehmite layer). The recitation of a battery, appearing only in the preamble is not deemed to further limit the claim. This position is further supported under the doctrine of claim differentiation, wherein it is assumed that two claims in the same patent will not have the identical scope, but instead, that there is likely an intended difference in scope between the two. Claim 2 actively recites a battery, therefore it is presumed that the battery is not required in claim 1.

Claim Rejections - 35 USC § 102—Maintained

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent No. 4,105,511 to Nikaido et al.

2. As to claim 1, disclosing an electrode plate comprising a surface having formed thereon an oxide layer, the oxide layer being formed by applying a boehmite treatment to the electrode plate surface. The same is disclosed by Nikaido. More specifically, Nikaido discloses

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subjecting an aluminum or aluminum alloy to a boehmite treatment, followed by electrolysis using the resulting aluminum or aluminum alloy as the electrode...thereby forming a new layer.

See e.g. column 1, line 64 *et seq.*

3. As to claim 3, Nikaido discloses that the boehmite treating method produces a layer having a thickness of up to about 1.0 micron. See e.g. column 1, lines 35-43.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-5, 9-10, and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by United States Patent No. 6,153,337 to Carlson et al.

6. With specific respect to claim 1, the reference reads on the claims. Claim 1 discloses an electrode plate comprising a surface having formed thereon an oxide layer, the oxide layer being formed by applying a boehmite treatment to the electrode plate surface. Carlson discloses coating a cathode (i.e. electrode) with a boehmite coating (boehmite sol). Boehmite is an oxide of aluminum. See e.g. column 3, lines 22-34 and column 4, lines 28-32 and claims 54 and 62.

7. As to claim 2 disclosing that the electrode plate is included in the battery, the cathode is disclosed to be used in an "electric current producing cell". See e.g. column 25, lines 29-39.

8. As to claim 3, disclosing that the oxide layer has a thickness of 0.5 microns-5 microns. The boehmite layer is disclosed to have a range of 1-25 and 5-15 microns, thus covering most of the claimed range. See e.g. column 4, lines 3-9.

9. As to claim 4, further limiting claim 2, disclosing that the oxide layer has a thickness of 0.5 microns-5 microns. The cathode discussed above with respect to claim 2 is coated as indicated as set forth in claim 3. Further, claim 102 at column 28, lines 41-43 disclose that the electric current producing cell boehmite layer is 5-15 microns.

10. As to claim 5, disclosing that the electrode plate is selected from the group consisting of a negative electrode plate and a positive electrode plate. Cathode was disclosed in the discussion at claim 1. See e.g. column 3, lines 22-34 and column 4, lines 28-32 and claims 54 and 62.

11. As to claim 13, disclosing that an electrode active material paste is on the oxide layer. It is noted that the method step of forming the paste, unless the step provides a different product, cannot be accorded patentable weight in device claims, as the device claims look to structure. The addition of a electrode active paste is disclosed generally starting at see column 1, line 57, and more specifically at e.g. column 2, line 40 *et seq.* Seemingly, novelty resides in part in the forming of the paste on the oxide layer. If something unique and identifiable structurally differentiates the claimed device, the identification of that characteristic may distinguish the claim from the instant reference.

12. As to claim 9, further limiting claim 13, and disclosing that the paste is dried, the same is disclosed at e.g. column 4, line 17 *et seq.*

13. As to claim 10, disclosing a method for producing an electrode plate for a Li secondary battery the method comprising the steps of providing an electrode plate (cathode) forming an oxide layer on the electrode plate by applying a boehmite treatment to the electrode plate (coating with boehmite) applying a paste (sol) comprising an electrode active material (organic electrolyte) to the oxide layer and drying the paste (drying the coating). See e.g. column 25, lines 29-39 and 64-67.

Conclusion

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gentle E. Winter whose telephone number is (571) 272-1310. The examiner can normally be reached on Monday-Friday 7:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on (571) 272-1302. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Gentle E. Winter
Examiner
Art Unit 1746

Zeinab Elarini

December 30, 2003

**ZEINAB EL-ARINI
PRIMARY EXAMINER**